

PATENT ABSTRACTS OF JAPAN

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(71)Applicant : OLYMPUS OPTICAL CO LTD

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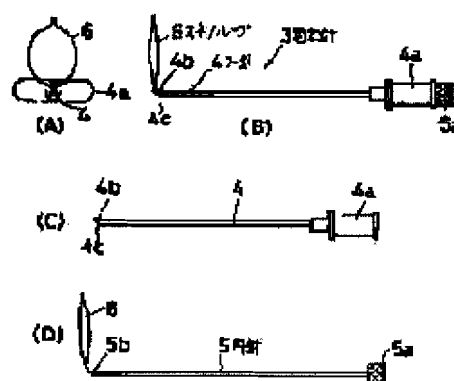
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(54) MEANS FOR FIXING ABDOMINAL WALL OF ORGAN

(57)Abstract:

PURPOSE: To safely, easily, rapidly and surely bring the internal organs and the abdominal wall into tight contact with less invasion on a patient.

CONSTITUTION: A needle 3 for fixing the abdominal wall of the organs which has an internal needle 5 to be slidably inserted into a tubular outer needle 4 and is provided with a snare loop 6 at the front end of the internal needle 5 by bending this loop 6 in the axial direction of the internal needle 5 is provided. One end of ligature projected from a yarn inserting needle is held by the snare loop 6 provided on the needle 3 for fixing the abdominal wall of the organs.



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CLAIMS

[Claim(s)]

[Claim 1] It has a needle and the inner needle inserted possible [a slide into an outside / this / needle] outside the shape of the yarn insertion needle which can insert the ligature into an organ, and tubing. It consists of an organ ventrofixation needle which crooked for it and prepared the snare loop in which **** is free from tip opening of said outside needle to the shaft orientations of said inner needle with slide actuation of said inner needle at the tip of said inner needle. The organ abdominal wall fastener characterized by holding the end section of the ligature projected from said yarn insertion needle by the snare loop prepared in said organ ventrofixation needle.

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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Industrial Application] This invention relates to the organ abdominal wall fastener used in case an intraperitoneal organ is fixed to an abdominal wall by the ligature.

[0002]

[Description of the Prior Art] Generally, when inserting a catheter in the intraperitoneal organ of the stomach, the gallbladder, or others endermically, there is a possibility that stomach juice, bile, and a noxa mixing object may leak to intraperitoneal [between an intraperitoneal organ and an abdominal wall].

[0003] Then, in case the catheter of a large diameter is endermically inserted comparatively in a coelome internal-organs machine, the instrument for preventing the above-mentioned problem and making insertion of a catheter easy is developed. For example, the technique which prevents that stomach juice, bile, etc. are revealed to intraperitoneal [between an intraperitoneal organ and an abdominal wall] at the time of endermic catheterization is well-known by sticking between internal organs and abdominal walls using the internal-organs support shown in JP,63-2365 I,A.

[0004]

[Problem(s) to be Solved by the Invention] However, since the internal-organs support of above-mentioned JP,63-2365 I,A has the comparatively thick outer-diameter dimension of the support itself, the reusable puncture needle for inserting this in internal organs serves as a large diameter from this internal-organs support further, and there is a problem that the invasion to a patient is large.

[0005] Furthermore, while there is a possibility that support may be omitted within internal organs when the suture attached in support goes out after inserting support in internal organs endermically, there is fault which requires time and effort for the activity which collects support.

[0006] This invention was made paying attention to the above-mentioned situation, and there is little invasion to a patient and it aims at offering insurance and the organ abdominal wall fastener to which internal organs and an abdominal wall can be stuck certainly easily for a short time.

[0007]

[Means for Solving the Problem] This invention is equipped with a needle and the inner needle inserted possible [a slide into an outside / this / needle] outside the shape of the yarn insertion needle which can insert the ligature into an organ, and tubing. It consists of an organ ventrofixation needle which crooked for it and prepared the snare loop in which **** is free from tip opening of said outside needle to the shaft orientations of said inner needle with slide actuation of said inner needle at the tip of said inner needle. The end section of the ligature projected from said yarn insertion needle by the snare loop prepared in said organ ventrofixation needle is held.

[0008]

[Function] When an inner needle is made to slide and the snare loop at the tip of an inner needle of an organ ventrofixation needle is made to project from an outside needle tip to an outside needle The point of the ligature which this snare loop is made crooked to the shaft orientations of an inner needle, and is

inserted through a yarn insertion needle in the condition of having made it inserting into this snare loop. By carrying out drawing-in actuation of the inner needle, and drawing a snare loop in the tip opening circles of an outside needle, the end section of the ligature is made to hold and between the organ within an abdominal wall and abdominal walls is fixed by this ligature.

[0009]

[Example] Hereafter, the 1st example of this invention is explained with reference to drawing 1 thru/or drawing 4. Drawing 4 (A) shows the outline configuration of the organ abdominal wall fastener 1. The yarn insertion needle 2 and the organ ventrofixation needle 3 are formed in this organ abdominal wall fastener 1.

[0010] As shown in this organ ventrofixation needle 3 at drawing 1 (A) - (C), the needle 4 and the tubing-like inner needle 5 inserted possible [a slide] into the outside [this] needle 4 are formed outside the shape of tubing of 20 gage extent. Adhesion immobilization of the outside needle tongue 4a is carried out at the hand side of the outside needle 4. Furthermore, bend 4c which tip opening 4b was turned [c] in the direction of a side face, and incurvated it is formed in the point of the outside [this] needle 4.

[0011] Moreover, as shown in drawing 1 (D), adhesion immobilization of the inner needle tongue 5a is carried out at the hand side of the inner needle 5. furthermore -- among these, the snare loop 6 formed in the approximate circle configuration with the line wire from single track or those [two or more] as shown in drawing 1 (A) is being fixed to point 5b of a needle 5. Low attachment immobilization of the terminal section of this snare loop 6 is carried out in the condition of having been inserted into the centrum of the inner needle 5 as shown in drawing 3.

[0012] Moreover, this snare loop 6 is crooked towards the abbreviation perpendicular direction to the shaft orientations of the inner needle 5. Furthermore, this snare loop 6 is inserted into tubing of the outside needle 4 with the inner needle 5, as it is shown in drawing 2, where elastic deformation of the loop-formation section of an approximate circle configuration is carried out to the shape of an abbreviation straight line, and tip opening 4b of the outside needle 4 to **** of it has become free with slide actuation of the inner needle 5.

[0013] In and the condition of having been slid until inner needle tongue 5a dashed against outside needle tongue 4a, as the inner needle 5 inserted into tubing of the outside needle 4 showed drawing 1 (B). As the snare loop 6 at the tip of the inner needle 5 shows completely an exterior side from tip opening 4b of the outside needle 4 at a projection and drawing 1 (D), it is crooked towards an abbreviation perpendicular direction to the outside needle 4, and an elastic return is carried out at the original loop shape of an approximate circle configuration.

[0014] In addition, bend 4c at the tip of the outside needle 4 is curving in the configuration which a snare loop 6 tends to project to an abbreviation perpendicular direction. This curve include angle is not limited exceptionally, but may be changed suitably. Moreover, the proper include angle not only within the limits of an abbreviation perpendicular but 45 degrees - 135 degrees is sufficient as the include angle of the shaft orientations of a needle 4, and the protrusion direction of a snare loop 6 to make the outside at the time of making a snare loop 6 project from point 4 of angle-of-bend [of the snare loop 6 fixed to the inner needle 5], and outside needle 4 a.

[0015] On the other hand, it is good at 20 gage extent usually marketed or the other reusable puncture needle, and the yarn insertion needle 2 is equal to the organ ventrofixation needle 3, or the object short a little of the needle length is desirable [the needle]. in this case -- the yarn insertion needle 2 -- abbreviation -- it pinches to the hand side of tubular needle body 2a, section 2b is formed, and the notching side which changed notching into the inclination condition to the shaft orientations of needle body 2a is formed in tip opening 2c.

[0016] Next, an operation of the above-mentioned configuration is explained. Here, the case where the stomach walls I which are intraperitoneal organs are fixed to an abdominal wall H using the organ ventrofixation needle 3 and the yarn insertion needle 2 is explained.

[0017] First, as shown in drawing 4 (A), it pierces through an abdominal wall H and stomach walls I from the outside of a patient's body, and the puncture of the organ ventrofixation needle 3 and the yarn

insertion needle 2 is carried out to a stomach lumen. At this time, a snare loop 6 carries out the puncture of the organ ventrofixation needle 3 in the condition of having contained in the outside needle 4.

[0018] Here, where the protrusion direction of a snare loop 6 is turned to the yarn insertion needle 2 side by which a puncture is put in order and carried out, the puncture of the organ ventrofixation needle 3 is carried out. Furthermore, spacing of two needles 2 and 3 is set up so that the insertion point of the yarn insertion needle 2 may be arranged at the core of the snare loop 6 of the organ ventrofixation needle 3.

[0019] Continue, the inner needle 5 in a needle 4 is made to slide outside the organ ventrofixation needle 3, and a snare loop 6 is made to project from tip opening 4b of the outside needle 4, as shown in drawing 4 (B). At this time, the snare loop 6 projected from tip opening 4b of the outside needle 4 is crooked towards an abbreviation perpendicular direction to the shaft orientations of the inner needle 5, and an elastic return is carried out at the original loop shape of an approximate circle configuration.

[0020] Next, the ligature 7 is inserted in the yarn insertion needle 2, and the point of the ligature 7 is passed in a snare loop 6. Next, it is made to hold by turning the inner needle 5 in the outside needle 4 to a hand side, drawing it, operating it, drawing a snare loop 6 in tip opening 4b of the outside needle 4, as shown in drawing 4 (C), and drawing the end section of the ligature 7 in the outside needle 4.

[0021] In this condition, as shown in drawing 4 (D), extraction of the inner needle 5 of the organ ventrofixation needle 3 is carried out to the outside of the body. Thus, if extraction of the inner needle 5 is completely carried out from the outside needle 4, the ligature 7 will pass through the inside of the outside needle 4, and will be drawn out by the outside of the body.

[0022] Next, extraction of the outside needle 4 and the yarn insertion needle 2 is carried out to the outside of the body in the condition [that the both ends of the ligature 7 are drawn out by the outside of the body]. And tension actuation of the both ends of the ligature 7 left behind at the end is carried out, and stomach walls I are contacted to an abdominal wall H, and in this condition, the both ends of the ligature 7 are ligated in the condition that stomach walls I make it stick to an abdominal wall H firmly, as shown in drawing 4 (E).

[0023] Then, since the outer diameter of the outside needle 4 which contains it by making thin the quality of the material of the snare loop 6 of the organ ventrofixation needle 3 can be minor-diameterized less than [20 gage extent or it] if it is in the thing of the above-mentioned configuration, although puncture resistance at the time of the puncture activity of a needle 4 is made small outside the organ ventrofixation needle 3, it can do. Therefore, since the re-puncture of the outside needle 4 can be simply carried out outside this organ ventrofixation needle 3 at the time of the puncture activity of a needle 4, it can be certainly used also for a beginner, without actuation of the organ ventrofixation needle 3 taking skill exceptionally.

[0024] Furthermore, since the yarn insertion needle 2 can use the thin reusable puncture needle equipped with the minor diameter yarn passage hole which is extent which can pass the ligature 7, this yarn insertion needle 2 does not almost have puncture resistance, either, and the re-puncture of it becomes possible.

[0025] Therefore, by use of the minor diameter organ ventrofixation needle 3 and the yarn insertion needle 2, there can be little invasion to a patient and can stick stomach walls I to an abdominal wall H certainly safely and easily for a short time.

[0026] Moreover, since neither complicated actuation nor the skilled technique is needed at the time of use of the organ ventrofixation needle 3 and the yarn insertion needle 2, stomach walls I are certainly stuck to an abdominal wall H for a short time and stomach walls I can certainly be firmly fixed to an abdominal wall H, leakage of stomach juice intraperitoneal [between an abdominal wall H and stomach walls I] can be prevented, and the SHON of the abdominal wall H at the time of catheterization and stomach walls I can carry out to insurance more.

[0027] In addition, since what is necessary is to cut the ligature 7 and just to extract stitches, when immobilization with an abdominal wall H and stomach walls I becomes unnecessary, immobilization with an abdominal wall H and stomach walls I can be canceled easily, and improvement in the workability can be aimed at.

[0028] Moreover, drawing 5 shows the 2nd example of this invention. This forms the positioning

heights 12 which fit into this positioning crevice 11 in inner needle tongue 5a of the inner needle 5 while forming the positioning crevice 11 at least in a joint with inner needle tongue 5a in needle tongue 4a outside a needle 4 outside the organ ventrofixation needle 3. In this case, as for the positioning crevice 11 of outside needle tongue 4a, and the positioning heights 12 of inner needle tongue 5a, the snare loop 6 is arranged in the projection and the straight direction from tip opening 4b of the outside needle 4.

[0029] Then, if it is in the thing of the above-mentioned configuration, when a needle 4 is made to insert and slide the inner needle 5 outside the organ ventrofixation needle 3 at the time of use of the organ ventrofixation needle 3, By making the positioning crevice 11 of outside needle tongue 4a carry out fitting of the positioning heights 12 of inner needle tongue 5a, a projection and the direction of the straight snare loop 6 can always be uniformly positioned from tip opening 4b of the outside needle 4 to the outside needle 4. Therefore, in case the yarn insertion needle 2 and the organ ventrofixation needle 3 are put in order and a puncture is carried out to a patient's inside of the body, it can consider as the standard which determines each puncture location, and improvement in operability can be aimed at.

[0030] Moreover, drawing 6 (A) - (C) shows the 3rd example of this invention. This is attached possible [a slide of the insertion major key node 22 which adjusts an insertion length to each needles 2 and 3] while forming the connecting plate 21 which connects between the organ ventrofixation needle 3 and the yarn insertion needles 2. In this case, the positioning heights 4d and 2d formed in tongue section 2b of needle tongue 4a and the yarn insertion needle 2 outside the organ ventrofixation needle 3 and the connection holes 21a and 21b which can fit in, respectively are established in the connecting plate 21. Furthermore, a needle 4 and the yarn insertion needle 2, and the fitting holes 22a and 22b of approximately the same diameter are established in the insertion major key node 22 outside the organ ventrofixation needle 3, respectively.

[0031] Then, since a needle 4 and the yarn insertion needle 2 can be unified outside the organ ventrofixation needle 3 and a puncture activity can be done on coincidence by using a connecting plate 21 if it is in the thing of the above-mentioned configuration, the puncture activity of a needle 4 and the yarn insertion needle 2 can be streamlined outside the organ ventrofixation needle 3.

[0032] Moreover, since spacing between a needle 4 and the yarn insertion needle 2 can always be maintained at fixed spacing outside the organ ventrofixation needle 3, the puncture of the two needles can be more easily carried out more to insurance.

[0033] Furthermore, since a needle 4 and the yarn insertion needle 2, and the fitting holes 22a and 22b of approximately the same diameter are established in the insertion major key node 22 outside the organ ventrofixation needle 3, respectively and the needle 4 and the yarn insertion needle 2 are equipped free [a slide] outside the organ ventrofixation needle 3, the die length of a needle 4 and the yarn insertion needle 2 can be suitably adjusted outside the organ ventrofixation needle 3 inserted in a patient's inside of the body.

[0034] That is, in case a needle 4 and the yarn insertion needle 2 are inserted in the inside of the body outside the organ ventrofixation needle 3, as shown in drawing 6 (A), the insertion major key node 22 can achieve the duty of a stopper, and it can prevent carrying out the puncture of a needle 4 and the yarn insertion needle 2 to the inside of the body outside the organ ventrofixation needle 3 more than ***** set up beforehand. Therefore, a needle 4 and the yarn insertion needle 2 can prevent the operation mistake which penetrates internal organs outside the organ ventrofixation needle 3, and safety improves.

[0035] Moreover, since the function which unifies a needle 4 and the yarn insertion needle 2 outside the organ ventrofixation needle 3 like a connecting plate 21, and always maintains spacing between a needle 4 and the yarn insertion needle 2 at fixed spacing outside the organ ventrofixation needle 3 by the insertion major key node 22 can be obtained, immobilization of a needle 4 and the yarn insertion needle 2 can be further made certain outside the organ ventrofixation needle 3.

[0036] Furthermore, drawing 7 (A) - (C) shows the 4th example of this invention. This forms the cross-section configuration of 4d of positioning heights of needle tongue 4a outside the organ ventrofixation needle 3 in the shape of [corresponding to angle hole 31a of a connecting plate 21] a rectangle while forming one connection hole 21a of the connecting plate 21 of the 3rd example by angle hole 31a.

[0037] Here, the cross-section configuration of 4d of positioning heights of angle hole 31a of a connecting plate 21 and outside needle tongue 4a may not be restricted to a square, and may be elliptical [other than a square / the shape of a polygon and elliptical].

[0038] And where the sense of the snare loop 6 which projects from tip opening 4b of a needle 4 outside the organ ventrofixation needle 3 is turned and doubled in the direction of connection hole 21b the yarn insertion needle 2, i.e., for yarn insertion needles, the connecting plate 21 is attached in the organ ventrofixation needle 3.

[0039] Then, since the direction of the snare loop 6 which projects from the organ ventrofixation needle 3 by using a connecting plate 21 can be made to fix in the condition of having always turned in the direction of the yarn insertion needle 2 if it is in the thing of the above-mentioned configuration, it can let certainly the ligature 7 inserted in the inside of the body from the yarn insertion needle 2 pass in a snare loop 6. Consequently, the technique which more certainly fixes to an abdominal wall H the stomach walls I which are intraperitoneal organs easily can be performed. In addition, as for this invention, it is needless to say that deformation implementation can be variously carried out in the range which is not limited to each above-mentioned example and does not deviate from the summary of this invention.

[0040]

[Effect of the Invention] According to this invention, it has a yarn insertion needle and the inner needle inserted possible [a slide into a needle] tubing-like outside. Since it was made to make the end section of the ligature projected from the yarn insertion needle by the snare loop which formed the organ ventrofixation needle which was crooked and prepared the snare loop at the tip of an inner needle to the shaft orientations of an inner needle, and was prepared in the organ ventrofixation needle hold There can be little invasion to a patient and can stick internal organs and an abdominal wall certainly safely and easily for a short time.

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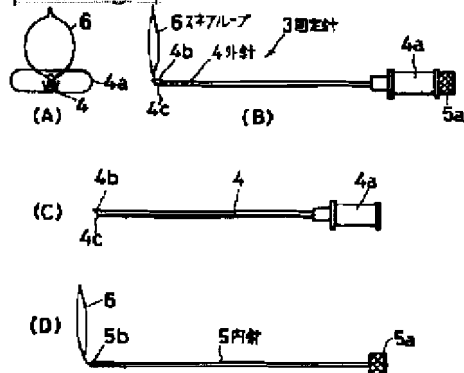
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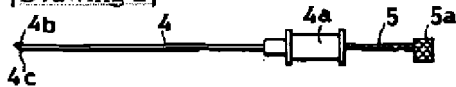
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DRAWINGS

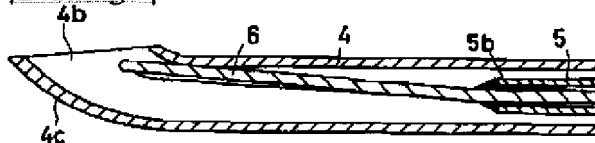
[Drawing 1]



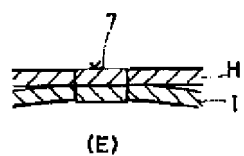
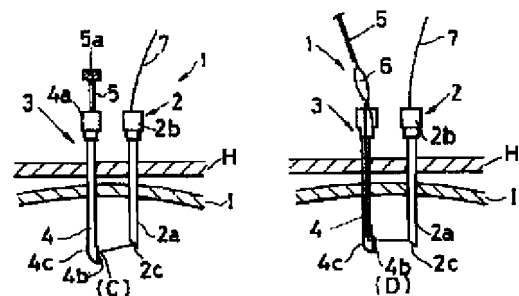
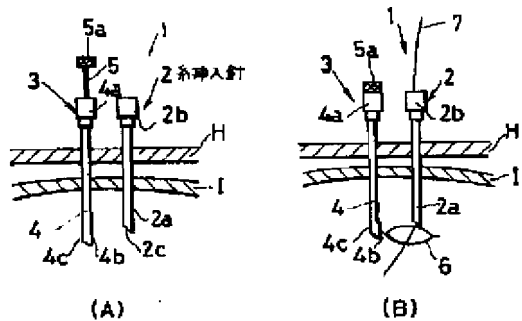
[Drawing 2]



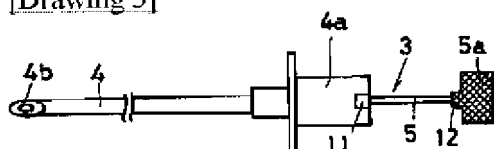
[Drawing 3]



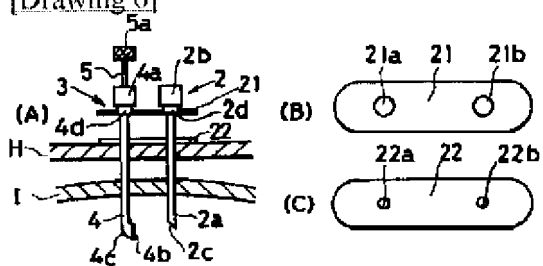
[Drawing 4]



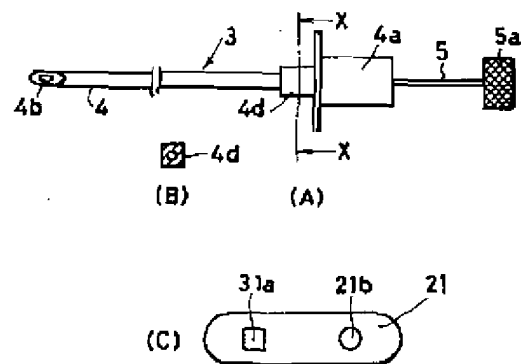
[Drawing 5]



[Drawing 6]



[Drawing 7]



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DESCRIPTION OF DRAWINGS**[Brief Description of the Drawings]**

[Drawing 1] For this side elevation and (C), the side elevation of an outside needle and (D) are [the front view showing the condition that (A) made the snare loop of an inner needle project from tip opening of an outside needle, by showing the organ ventrofixation needle of the 1st example of this invention, and (B)] the side elevation of an inner needle.

[Drawing 2] The side elevation showing the condition of having engrossed the snare loop of an inner needle in the tip opening circles of an outside needle.

[Drawing 3] Drawing of longitudinal section expanding and showing the important section of drawing 2.

[Drawing 4] Drawing of longitudinal section of an important section in which the busy condition of an organ abdominal wall fastener is shown, and (A) shows the insertion condition of an organ ventrofixation needle and a yarn insertion needle, For drawing of longitudinal section of an important section showing the grasping condition of yarn with an organ ventrofixation needle, and (D), (E) is [(B) / drawing of longitudinal section of an important section showing the insertion condition of yarn, and (C)] drawing of longitudinal section of an important section showing the drawing condition of the margin-of-string section with an organ ventrofixation needle, and drawing of longitudinal section of an important section showing the ligation condition of yarn.

[Drawing 5] The side elevation showing the 2nd example of this invention.

[Drawing 6] It is the top view in which drawing of longitudinal section of an important section in which (A) shows the busy condition of the connecting plate of an organ ventrofixation needle and a yarn insertion needle, the top view in which (B) shows a connecting plate, and (C) show an insertion major key node by showing the 3rd example of this invention.

[Drawing 7] It is the top view in which the side elevation in which (A) shows an organ abdominal wall fastener, and (B) show X-X-ray sectional view of (A), and (C) shows a connecting plate by showing the 4th example of this invention.

[Description of Notations]

2 [-- An inside needle, 6 / -- A snare loop, 7 / -- Ligature.] -- A yarn insertion needle, 3 -- An organ ventrofixation needle, 4 -- An outside needle, 5

[Translation done.]

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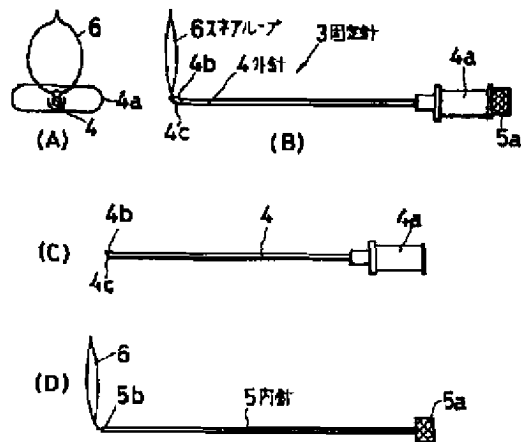
(74) 代理人 弁理士 鈴江 武彦

(54) 【発明の名称】 臓器腹壁固定具

(57) 【要約】

【目的】 本発明は、患者への侵襲が少なく、安全、かつ容易に、短時間で確実に内臓と腹壁を密着させることを最も主要な特徴とする。

【構成】 管状の外針4内にスライド可能に挿入される内針5を備え、内針5の先端のスネアーループ6を内針5の軸方向に対して屈曲して設けた臓器腹壁固定針3を設け、臓器腹壁固定針3に設けられたスネアーループ6で糸挿入針から突出した結紮系の一端部を保持することを特徴としている。



【特許請求の範囲】

【請求項1】 臓器内に結紮系を挿入可能な系挿入針と、管状の外針とこの外針内にスライド可能に挿入される内針とを備え、前記内針の先端に前記内針のスライド動作にともない前記外針の先端開口部から突没自在なスネアループを前記内針の軸方向に対して屈曲して設けた臓器腹壁固定針とからなり、前記臓器腹壁固定針に設けられたスネアループで前記系挿入針から突出した結紮系の一端部を保持することを特徴とする臓器腹壁固定具。

【発明の詳細な説明】

【0001】

【産業上の利用分野】本発明は腹腔内臓器を腹壁に結紮系によって固定する際に使用する臓器腹壁固定具に関する。

【0002】

【従来の技術】一般に、胃や胆のうやその他の腹腔内臓器に、経皮的にカテーテルを挿入する場合、胃液や胆汁や病毒混入体が腹腔内臓器と腹壁との間の腹腔内に漏れるおそれがある。

【0003】そこで、経皮的に比較的大径のカテーテルを腹腔内臓器に挿入する際、上記の問題を防止し、かつカテーテルの挿入を容易にするための器具が開発されている。例えば、特開昭63-23651号公報に示す内臓アンカーを使用して内臓と腹壁との間を密着させることにより、経皮的なカテーテル挿入時に腹腔内臓器と腹壁との間の腹腔内に胃液や胆汁等が漏洩することを防止する手技が公知である。

【0004】

【発明が解決しようとする課題】ところが、上記特開昭63-23651号公報の内臓アンカーはアンカー自体の外径寸法が比較的大いので、これを内臓に挿入する際の穿刺針はこの内臓アンカーよりもさらに大径となり、患者への侵襲が大きい問題がある。

【0005】さらに、アンカーを経皮的に内臓に挿入した後、アンカーに取り付けられた縫合線が切れた場合にはアンカーが内臓内で脱落するおそれがあるとともに、アンカーを回収する作業に手間がかかる不具合がある。

【0006】この発明は上記事情に着目してなされたもので、患者への侵襲が少なく、安全、かつ容易に、短時間で確実に内臓と腹壁を密着させることができる臓器腹壁固定具を提供することを目的とするものである。

【0007】

【課題を解決するための手段】この発明は臓器内に結紮系を挿入可能な系挿入針と、管状の外針とこの外針内にスライド可能に挿入される内針とを備え、前記内針の先端に前記内針のスライド動作にともない前記外針の先端開口部から突没自在なスネアループを前記内針の軸方向に対して屈曲して設けた臓器腹壁固定針とからなり、前記臓器腹壁固定針に設けられたスネアループで前記系挿入針から突出した結紮系の一端部を保持するものであ

る。

【0008】

【作用】外針に対し、内針をスライドさせて臓器腹壁固定針の内針先端のスネアループを外針先端から突出させた際に、このスネアループを内針の軸方向に対して屈曲させ、系挿入針を通して挿入される結紮系の先端部をこのスネアループ内に挿入させた状態で、内針を引き込み操作させてスネアループを外針の先端開口部内に引き込むことにより、結紮系の一端部を保持させ、この結紮系により、腹壁内の臓器と腹壁との間を固定するようにしたものである。

【0009】

【実施例】以下、この発明の第1の実施例を図1乃至図4を参照して説明する。図4(A)は臓器腹壁固定具1の概略構成を示すものである。この臓器腹壁固定具1には系挿入針2と、臓器腹壁固定針3とが設けられている。

【0010】この臓器腹壁固定針3には図1(A)～(C)に示すように20ゲージ程度の管状の外針4とこの外針4内にスライド可能に挿入される管状の内針5とが設けられている。外針4の手元側には外針つまみ4aが接着固定されている。さらに、この外針4の先端部には先端開口部4bを側面方向に向けて湾曲させた湾曲部4cが形成されている。

【0011】また、図1(D)に示すように内針5の手元側には内針つまみ5aが接着固定されている。さらに、この内針5の先端部5bには図1(A)に示すように単線又は複数本のより線ワイヤにより略円形状に形成されたスネアループ6が固定されている。このスネアループ6の端部は図3に示すように内針5の中空部に挿入された状態でロー付け固定されている。

【0012】また、このスネアループ6は内針5の軸方向に対し略垂直方向に向けて屈曲されている。さらに、このスネアループ6は略円形状のループ部が略直線状に弾性変形された状態で図2に示すように内針5とともに外針4の管内に挿入されており、内針5のスライド動作にともない外針4の先端開口部4bから突没自在になっている。

【0013】そして、外針4の管内に挿入された内針5が図1(B)に示すように外針つまみ4aに内針つまみ5aが突き当たるまでスライドされた状態で、外針4の先端開口部4bから内針5の先端のスネアループ6が外部側に完全に突出し、図1(D)に示すように外針4に対して略垂直方向に向けて屈曲され、かつ略円形状の元のループ形状に弾性復帰するようになっている。

【0014】なお、外針4の先端の湾曲部4cはスネアループ6が略垂直方向に突出し易い形状に湾曲されている。この湾曲角度は格別に限定されず、適宜変えてもよい。また、内針5に固定したスネアループ6の曲げ角度及び外針4の先端部4aからスネアループ6を突出させ

3

た際の外針4の軸方向とスネアループ6の突出方向とのなす角度は略垂直に限らず、例えば $45^{\circ} \sim 135^{\circ}$ の範囲内の適宜の角度でも良い。

【0015】一方、糸挿入針2は通常市販されている20ゲージ程度、又はそれ以外の穿刺針でよく、その針長は臓器腹壁固定針3と等しいか、又は若干短い物が好ましい。この場合、糸挿入針2には略管状の針本体2aの手元側につまみ部2bが形成されており、先端開口部2cには針本体2aの軸方向に対して傾斜状態に切欠させた切欠面が形成されている。

【0016】次に、上記構成の作用について説明する。ここでは、臓器腹壁固定針3及び糸挿入針2を使用して腹腔内臓器である胃壁Iを腹壁Hに固定する場合について説明する。

【0017】まず、図4(A)に示すように、臓器腹壁固定針3と、糸挿入針2を患者の身体の外側から腹壁H及び胃壁Iを貫いて胃の内腔まで穿刺する。この時、スネアループ6は外針4内に収納した状態で臓器腹壁固定針3を穿刺する。

【0018】ここで、臓器腹壁固定針3はスネアループ6の突出方向を並べて穿刺される糸挿入針2側に向けた状態で穿刺される。さらに、2本の針2、3の間隔は、糸挿入針2の挿入位置が臓器腹壁固定針3のスネアループ6の中心に配置されるように設定される。

【0019】つづいて、臓器腹壁固定針3の外針4内の内針5をスライドさせ、図4(B)に示すようにスネアループ6を外針4の先端開口部4bから突出させる。このとき、外針4の先端開口部4bから突出されたスネアループ6は内針5の軸方向に対し略垂直方向に向けて屈曲され、かつ略円形状の元のループ形状に弾性復帰される。

【0020】次に、糸挿入針2に結紮糸7を挿入し、スネアループ6内に結紮糸7の先端部を通過させる。次に、図4(C)に示すように外針4内の内針5を手元側に向けて引き込み操作してスネアループ6を外針4の先端開口部4b内に引き込み、結紮糸7の一端部を外針4内に引き込むことにより、保持させる。

【0021】この状態で、図4(D)に示すように臓器腹壁固定針3の内針5を体外に抜去する。このように内針5を外針4から完全に抜去すると結紮糸7が外針4内を通過して体外に引き抜かれる。

【0022】次に、結紮糸7の両端が体外に引き抜かれたままの状態、外針4及び糸挿入針2を体外に抜去する。そして、最後に残された結紮糸7の両端を引張り操作して胃壁Iを腹壁Hに接触させ、この状態で結紮糸7の両端を図4(E)に示すように胃壁Iが腹壁Hにしっかりと密着させる状態に結紮する。

【0023】そこで、上記構成のものにあつては臓器腹壁固定針3のスネアループ6の材質を細くすることによりそれを収納する外針4の外径を20ゲージ程度又はそ

4

れ以下に小径化することができるので、臓器腹壁固定針3の外針4の穿刺作業時の穿刺抵抗を小さくすることができる。そのため、この臓器腹壁固定針3の外針4の穿刺作業時には外針4を簡単に再穿刺できるので、臓器腹壁固定針3の操作に格別に熟練を要することなく初心者にも確実に使用することができる。

【0024】さらに、糸挿入針2は結紮糸7を通過させることができる程度の小径な糸通過穴を備えた細い穿刺針を使用できるので、この糸挿入針2も穿刺抵抗が殆どなく、再穿刺可能となる。

【0025】そのため、小径な臓器腹壁固定針3および糸挿入針2の使用によって患者への侵襲が少なく、安全、かつ容易に、短時間で確実に胃壁Iを腹壁Hに密着させることができる。

【0026】また、臓器腹壁固定針3および糸挿入針2の使用時には複雑な操作や熟練した技術を必要とせず、短時間で確実に胃壁Iを腹壁Hに密着させ、かつ胃壁Iを腹壁Hに確実にしっかりと固定できるので、腹壁Hと胃壁Iとの間の腹腔内への胃液の漏洩を防止でき、カテーテル挿入時の腹壁Hと胃壁Iとのダイレーションがより安全に行える。

【0027】なお、腹壁Hと胃壁Iとの固定が不要になった場合には結紮糸7を切断、抜糸すればよいので、簡単に腹壁Hと胃壁Iとの固定を解除することができ、その作業性の向上を図ることができる。

【0028】また、図5はこの発明の第2の実施例を示すものである。これは、臓器腹壁固定針3の外針4の外針つまみ4aにおける内針つまみ5aとの接合部に位置決め凹部11を形成するとともに、内針5の内針つまみ5aにこの位置決め凹部11に嵌合する位置決め凸部12を設けたものである。この場合、外針つまみ4aの位置決め凹部11および内針つまみ5aの位置決め凸部12はスネアループ6が外針4の先端開口部4bから突出し、屈曲する方向に配置されている。

【0029】そこで、上記構成のものにあつては、臓器腹壁固定針3の使用時には臓器腹壁固定針3の外針4に内針5を挿入してスライドさせた時、外針つまみ4aの位置決め凹部11に内針つまみ5aの位置決め凸部12を嵌合させることにより、外針4の先端開口部4bから突出し、屈曲するスネアループ6の方向を外針4に対し常に一定に位置決めすることができる。そのため、糸挿入針2と臓器腹壁固定針3とを並べて患者の体内に穿刺する際に、それぞれの穿刺位置を決める目安とすることができ、操作性の向上を図ることができる。

【0030】また、図6(A)～(C)はこの発明の第3の実施例を示すものである。これは、臓器腹壁固定針3と糸挿入針2との間を連結する連結板21を設けるとともに、各々の針2、3に挿入長を調節する挿入長調節板22をスライド可能に取り付けたものである。この場合、連結板21には臓器腹壁固定針3の外針つまみ4a

5

および糸挿入針2のつまみ部2bに形成された位置決め凸部4d、2dとそれぞれ嵌合可能な連結穴21a、21bが設けられている。さらに、挿入長調節板22には臓器腹壁固定針3の外針4および糸挿入針2と略同径の嵌合穴22a、22bがそれぞれ設けられている。

【0031】そこで、上記構成のものにあっては連結板21を用いることにより、臓器腹壁固定針3の外針4および糸挿入針2を一体化して同時に穿刺作業を行なうことができるので、臓器腹壁固定針3の外針4および糸挿入針2の穿刺作業を能率化することができる。

【0032】また、臓器腹壁固定針3の外針4と糸挿入針2との間の間隔を常に一定間隔で保つことができるので、より安全に、より容易に2本の針を穿刺することができる。

【0033】さらに、挿入長調節板22には臓器腹壁固定針3の外針4および糸挿入針2と略同径の嵌合穴22a、22bがそれぞれ設けられており、臓器腹壁固定針3の外針4および糸挿入針2にスライド自在に装着されているので、患者の体内に挿入する臓器腹壁固定針3の外針4および糸挿入針2の長さを適宜調節することができる。

【0034】すなわち、臓器腹壁固定針3の外針4および糸挿入針2を体内に挿入する際、図6(A)に示すように挿入長調節板22がストッパの役目を果たし、予め設定された挿入長以上に臓器腹壁固定針3の外針4および糸挿入針2が体内に穿刺されることを防ぐことができる。そのため、臓器腹壁固定針3の外針4および糸挿入針2が内臓を貫通する誤操作を防止でき、安全性が向上する。

【0035】また、挿入長調節板22によって連結板21と同様に臓器腹壁固定針3の外針4および糸挿入針2を一体化し、臓器腹壁固定針3の外針4と糸挿入針2との間の間隔を常に一定間隔で保つ機能を得ることができるので、臓器腹壁固定針3の外針4および糸挿入針2の固定を一層確実化することができる。

【0036】さらに、図7(A)～(C)はこの発明の第4の実施例を示すものである。これは、第3の実施例の連結板21の一方の連結穴21aを角穴31aによって形成するとともに、臓器腹壁固定針3の外針つまみ4aの位置決め凸部4dの断面形状を連結板21の角穴31aに対応する矩形状に形成したものである。

【0037】ここで、連結板21の角穴31aおよび外針つまみ4aの位置決め凸部4dの断面形状は四角形に限るものではなく、四角形以外の多角形状又は楕円形状であってもよい。

【0038】そして、臓器腹壁固定針3の外針4の先端開口部4bから突出するスネアループ6の向きを糸挿入針2、すなわち糸挿入針用の連結穴21bの方向に向け

6

て合わせた状態で連結板21が臓器腹壁固定針3に取り付けられている。

【0039】そこで、上記構成のものにあっては連結板21を用いることにより、臓器腹壁固定針3から突出するスネアループ6の方向を常に糸挿入針2の方向に向けた状態で固定させることができるので、糸挿入針2より体内に挿入された結紮糸7を確実にスネアループ6内に通すことができる。その結果、より確実に容易に腹腔内臓器である胃壁Iを腹壁Hに固定する手技を行なうことができる。なお、この発明は上記各実施例に限定されるものではなく、この発明の要旨を逸脱しない範囲で種々変形実施できることは勿論である。

【0040】

【発明の効果】この発明によれば糸挿入針と、管状の外針内にスライド可能に挿入される内針を備え、内針の先端のスネアループを内針の軸方向に対して屈曲して設けた臓器腹壁固定針とを設け、臓器腹壁固定針に設けられたスネアループで糸挿入針から突出した結紮糸の一端部を保持させるようにしたので、患者への侵襲が少なく、安全、かつ容易に、短時間で確実に内臓と腹壁を密着させることができる。

【図面の簡単な説明】

【図1】 この発明の第1の実施例の臓器腹壁固定針を示すもので、(A)は外針の先端開口部から内針のスネアループを突出させた状態を示す正面図、(B)は同側面図、(C)は外針の側面図、(D)は内針の側面図。

【図2】 外針の先端開口部内に内針のスネアループを没入させた状態を示す側面図。

【図3】 図2の要部を拡大して示す縦断面図。

【図4】 臓器腹壁固定具の使用状態を示すもので、(A)は臓器腹壁固定針および糸挿入針の挿入状態を示す要部の縦断面図、(B)は糸の挿入状態を示す要部の縦断面図、(C)は臓器腹壁固定針による糸の把持状態を示す要部の縦断面図、(D)は臓器腹壁固定針による糸端部の引き抜き状態を示す要部の縦断面図、(E)は糸の結紮状態を示す要部の縦断面図。

【図5】 この発明の第2の実施例を示す側面図。

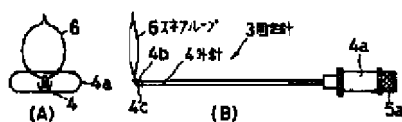
【図6】 この発明の第3の実施例を示すもので、(A)は臓器腹壁固定針および糸挿入針の連結板の使用状態を示す要部の縦断面図、(B)は連結板を示す平面図、(C)は挿入長調節板を示す平面図。

【図7】 この発明の第4の実施例を示すもので、(A)は臓器腹壁固定具を示す側面図、(B)は(A)のX-X線断面図、(C)は連結板を示す平面図。

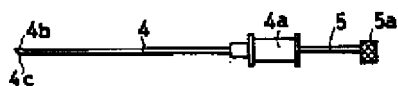
【符号の説明】

2…糸挿入針、3…臓器腹壁固定針、4…外針、5…内針、6…スネアループ、7…結紮糸。

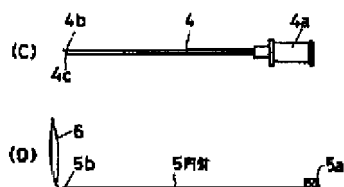
【図1】



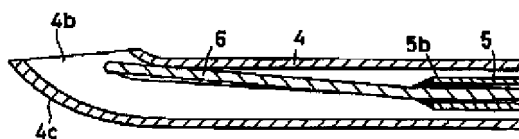
【図2】



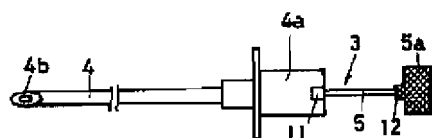
【図4】



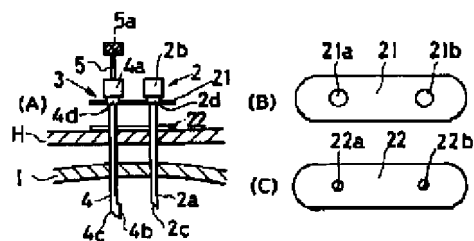
【図3】



【図5】



【図6】



【図7】

